Occidental Chemical Corporation

SAFETY REGULATIONS SR 30

"LINE OR EQUIPMENT BREAKING PROCEDURE"

NIAGARA PLANT

WHAT: THIS SOP OUTLINES THE MINIMUM SAFE PREPARATIONS FOR THE OPENING OF LINES AND EQUIPMENT.

WHERE: ALL AREAS OF THE NIAGARA PLANT.

WHO: ALL PERSONNEL INVOLVED WITH PERFORMING A LINE AND/OR EQUIPMENT OPENING PROCEDURE.

WHY: TO PROTECT PERSONNEL FROM CONTACT AND EXPOSURE TO POTENTIALLY HAZARDOUS MATERIAL.

SUMMARY:

- PRE-AUDIT AND PLAN AHEAD BEFORE EFFECTING THE BREAK.
- A COMPLETED AND SIGNED SOP 30 CARD IS MANDATORY BEFORE ANY WORK BEGINS ON LINES AND/OR EQUIPMENT.

DISTRIBUTION: ALL SUPERVISION	EFFECTIVE DATE: AUGUST 1991	AUTHORIZED BY:
APPROVED BY: DEPT HEADS, SAFETY DEPT., & SOP SAFETY COMMITTEE	SUPERSEDES: SOP 30C	G.F. BLASIUS
CONDITIONS: NO DEVIATIONS PERMITTED WITHOUT APPROVAL DEPT. HEADS, MANAGERS INVOLVED, AND SAFETY DEPT.		

- Production and maintenance personnel must sign to verify that all applicable items on the SR 30 card have been completed.
- Get further instructions from your supervisor when you are not sure of your situation.
- Use proper and serviceable safety equipment.
- Treat any unknown material as a class i.

I. GENERAL

The purpose of this procedure is to establish a standard for safe and environmentally sound preparation and opening of equipment or pipelines which have or could contain hazardous materials. This procedure applies to both maintenance and operations tasks which fall under the definition of line breaking. This procedure ties in very closely with the Lock, Tag And Try Procedure (SR 13) since, in most instances, isolation valves, etc., must be locked out.

A. When dealing with chemicals contained in pipelines and/or process equipment, the potential for an incident(s) is ever present. Good planning, preparation, use of personal protective equipment, and other safeguards will allow work to be performed safely.

B. When opening lines and/or equipment, personal protective equipment listed for the respective material classifications will be worn. If the material is not listed in the examples of Class I, Class II, or special chemicals and materials, handle as Class I unless deemed otherwise by Safety Department.

C. Each department is responsible for outlining the physical, chemical and process characteristics of chemical commodities transported through their respective pipelines and equipment. When decontaminating and working with any Sara Title III, CERCLA, New York State DEC, bulk storage regulated substances, in a graveled or unpaved area, a containment vessel must be used. The containment vessel shall be large enough to collect all of the contaminant (plan for 1-1/2 times the volume). When decontaminating areas that are difficult to reach, a funnel or draining system shall be used. The material collected should be recycled to the process if at all possible.

PLANT

D. The procedures for the removal and disposal of containment material and contaminated personal protective equipment is the responsibility of the Production Department and put into the planning portion of every line break. The department must know what to do with the material collected such as obtaining waste code number.

E. The draining of pipelines and equipment shall be done within contained process systems. If this is not possible, the secondary method of draining will be to erect a temporary containment barrier. Pipelines will be purged to ensure adequate draining.

F. Scrubbing equipment will be planned into the line break based on pipeline or equipment contents to capture fugitive emissions.

G. All disconnected pipes and process equipment shall immediately be tagged indicating previous contents or possible contaminants. No contaminated pipes or process equipment will be transported in the plant without the "request for decontamination" form completed and attached.

H. The "line or equipment breaking checklist" must be completed in its entirety and signed before work is started (see Attachment I).

I. Designated area(s) will be barricaded before the break.

II. DEFINITIONS

A. Line breaking

The initial physical breaking apart of a portion of a chemical process which contains or is suspected to contain hazardous or unknown chemicals. The initial physical breaking includes unscrewing, unbolting or the cutting of screwed pipe, flanged cemented, welded or other types of connections on pipelines or process equipment. Materials in the plant are classified based on the degree of hazard and this classification is utilized to select the proper personal protective equipment to perform the line break safely.

1. Class I Materials: those that will burn the skin on immediate contact or present an inhalation hazard.

   All liquids, gases, or vapors, above 60°C (140°F) or below -30°C (-22° F) are considered Class I materials.

Any unidentified material within pipelines or equipment shall be treated as Class I material.

Known and suspected carcinogens shall be treated as Class I materials.

2. Class II Materials: a chemical that may burn the eyes or skin on extended contact.

3. Special Chemicals/Material: chemicals and/or material that do not fit the definitions of Class I or Class II chemicals. Some examples of these are: air, city water, nitrogen and river water. The reason these chemicals/materials are considered hazardous is the manner in which they are being used.

4. Immediate Contact: is defined as materials that will inflict chemical or thermal burns before a person can reach the nearest safety shower and eye wash.

5. Extended Contact: a burn will result if a person fails to go immediately to the nearest safety shower and eye wash.

B. Line Or Equipment Breaking Checklist

Checklist must be completed by maintenance and production before any process line or equipment is opened which contains or has contained hazardous material. Refer to Attachment I. The checklist is available from Stores, Part No. 46999809, listed under form, **Line Or Equipment**.

C. Cleaning And Decontamination Work Request

Request must be completed and attached by supervision before process piping or equipment will be authorized to be transported in the plant for cleaning or decontamination. The work request is available from Stores, Part No. 46699150 listed under form; **Cleaning And Decontamination Request**.

D. Blind Flange

A manufactured end blank designed to match the bolt pattern and specific pressure of a specific pipe construction (example: 150#) built to the specifics and standards of ANSI, b31.3 and b16.5. A bleed or drain valve should be incorporated if possible.

E. Slip In Blank

A manufactured or fabricated isolation device which when properly used, fit within the bolt circle and seats on gasket surface of two bolted flange faces.

II. EXAMPLES OF CLASS I MATERIALS FOR LINE BREAKING

Benzoyl Chloride
C-56
Cell Liquor
Caustic Soda
Cl_2 (Liquid Or Gas)
Cyclooctadiene
3,4 DCBTF (Crude & Finished)
Hot (Molten) Alkyl
Acid Phosphates
HF (Anhydrous Or Aqueous)
Hypophosphorous Acid
Liquid Ammonia
Liquid CO_2
Muriatic Acid
Oleum
PCBTF (Crude & Finished)
Phosphoric Acid
Phosphorus
Residues
So_2 (Liquid Or Gas)
Sodium Hypochlorite
Steam And Condensate
Sulfuric Acid
Sulfuryl Chloride
Sulfur Monochloride
Sulfur Dichloride
Molten Sulfur
Therminol
Thionyl Chloride

III. EXAMPLES OF CLASS II MATERIALS FOR LINE BREAKING

Alcohols (All)
BTC
Chlorinated Intermediates
(Benzoyl, Benzals, Etc.)
Cyclooctadiene
Dichlorotoluene
Methanol
MCT
OCT
PCT
Perchloroethylene
Trichloroethylene
Xylene

IV. EXAMPLES OF SPECIAL CHEMICALS/MATERIALS

Air
City Water
Nitrogen
River Water

NOTE: If the material is not listed above, do not proceed until you contact your Supervisor, Department Head and/or a Safety Engineer.

V. REQUIRED PERSONAL PROTECTIVE EQUIPMENT FOR CLASS I AND II BREAK

A. Minimum equipment for personal protection to be used when hazardous material is not thermal and/or high pressure:

1. Body: PVC jackets and pants, Sarenex coverall or equivalent approved by Safety Department.

   Note: The PVC jacket has tapered sleeves and elastic at the ankle of the pants. The Sarenex coverall has tapered sleeves and a special boot cuff.

2. Head: Graylite Hood Or Pesco Hood designed to be used with full face mask and hard hat.

3. Respiratory: Full face canister mask with the canister appropriate for the chemical.

4. Hands: Gloves appropriate for the chemical. Chem guard sleeve May be used.

   Note: The tapered glove cuff insert shall be used at the cuff interface inside the PVC jacket or Sarenex suit to effect a tight seal between the gloves and the outer garment.

5. Feet: Rubber boots, Tingley, Lacross or equivalent.

B. Breathing air mask or SCBA are required for some jobs which present oxygen deficient atmospheres, toxic and/or corrosive material exposure hazards, and materials that are immediately dangerous to life and health. Some examples are: chlorine, sulfur dioxide, hydrogen fluoride.

C. Kevlar clothing with appropriate gloves to include the "best" type glove shall be used, while working with and/or handling phosphorus and Therminol 66. If the "best" type glove is used in phosphorus service, a 16 inch Kevlar sleevelet must be worn.

D. Complete aluminized Kevlar protection is required for thermal and/or high pressure.

VI. REQUIRED PERSONAL PROTECTIVE EQUIPMENT FOR LINE BREAKS OTHER THAN CLASS I AND CLASS II SUCH AS AIR, CITY WATER, NITROGEN AND RIVER WATER.

A. The minimum equipment for personal protection to be used when doing a special chemical/material line break is as follows:

1. Body: PVC jacket & pants or equivalent approved by Safety Department.
2. Head: Face shield and hard hat.
3. Respiratory: As deemed necessary for the job.
4. Hands: Approved leather or rubber gloves when liquids are a concern.
5. Feet: Standard footwear, rubber boots when liquid is a concern.

VII. PROCEDURE FOR OPENING PROCESS EQUIPMENT OR PIPELINES

A. Pre-audit the work to insure a safe job. For example:

- Verify the material you will be working with.
- Locate the nearest safety shower and eye wash; test it.
- Barricade the area (see sr 8).
- Locate the nearest telephone to use in an emergency.
- Check that process equipment and/or pipelines are properly locked out and tagged.
- Complete the line or equipment breaking checklist.
- Know evacuation routes.
- Evaluate atmospheric conditions, i.e.; High humidity.
- Determine type/volume of necessary containment equipment and disposal method.

B. Inspect safety equipment before using. Make sure it is serviceable and clean. Do not use equipment if fund defective.

C. All maintenance personnel must be signed in by production personnel prior to any line break. Maintenance and production personnel will jointly inspect equipment to be opened for proper preparation against known and/or suspected hazards.

D. The supervisor of the personnel performing the line break will initial the line or equipment breaking check lists for those jobs he/she audits prior to completion of the work.

E. Completed **Line Or Equipment Breaking Checklists** will be submitted to the foreman who will keep it on file for one Calendar Quarter.

VIII. LOCKOUT OF PROCESS EQUIPMENT AND PIPELINES

A. All process equipment and pipelines to be worked on during the line break must be locked out following SR 13.

B. Refer to SR 13 (Lock, Tag And Try) for further details of the proper lockout procedures when the flow or air, chemicals, flammable liquids, gases, steam or water through an unblanked pipeline would present a hazardous condition.

IX. CAST IRON PIPING AND FITTINGS IN HAZARDOUS SERVICE

A. Due to the low ductility of cast iron, special precautions must be exercised to prevent bursting due to stresses and avoid subsequent exposure of personnel to the hazardous contents of pipelines.

B. Valving off or otherwise positively isolating the supply line side of the line at a minimum distance of 50 feet from the work zone. Isolation may be less that 50 feet if a substantial barrier such as a building wall separated the work zone from the cast iron.

C. When cast iron is found during the course of a job, it must be reported to supervision so action can be taken to replace this piping and/or fittings. Fire Protection Systems are the only exception permitted.

X. PLASTIC PIPING

A. Some forms of plastic piping can become brittle with age and chemical exposure. Others are affected by extreme temperatures. Care must be exercised when working with these plastics.

XI. PIPELINES CONTAINING HAZARDOUS MATERIALS

A. When these pipelines are worked on, valves that stop material flow must be closed, locked, tagged and tried. (Follow SR 13)

B. At least two valves on the upstream side of the point of work should be closed, locked, tagged and tried. No dependence should ever be placed upon check valves to prevent the flow of materials.

Exception: Liquefied gases, i.e.; Chlorine due to expansion problems.

1. If lines are tied to a common header, it may also be necessary to lock out and tag additional valves to prevent backflow.

2. All material should be bled from the lines and purged to ensure no blockage exists.

3. When a bleed point is not available, the source of pressure on the material in a pipe lien should be removed (shutting down and locking out the pump feeding the line).

4. When working on hydrogen line(s), the line(s) must be isolated by a blind flange.

XII. DURATION OF CLASS I MODE OF OPERATION

All required Personal Protective Equipment will be worn until the job is reviewed by the foreman in charge of the workmen and he/she authorizes downgrading to the plant's standard personal protective equipment. (Refer to SR 1)

NOTE: Class I safety equipment will be worn when working with product lines that are subject to plugging until the line is flushed and/or purged.

XIII DOWNTIME AFTER LINE BREAK

A. If a job is to be left unattended for more than four hours, the system shall be secured or closed by one of the following means:

1. Double block and bleed (where possible).

NOTE: For Liquid Chlorine and SO_2 lines, a bleed line must be connected to a chlorine disposal system being monitored on a hourly basis.

2. Blind flanges - properly designed to meet specifications in Section XV of this SR 30.

NOTE: For Liquid Chlorine and SO_2 lines, any section of line that can be isolated by the blind flange must be protected from liquid expansion.

3. A properly designed closure (e.g.; Special back pull pump arrangements.)

4. Chlorine/SO_2 lines: 300 pound line blinds complete with burst disc and expansion bottle must be used.

NOTE: Exception would be where a crew can maintain continuity through a shift change.

B. When there is a possibility of a line refilling and no other drain exists, a drain valve shall be attached to the blank flange or closure.

C. Safeguards such as locked switches and locked valves shall be continued until the system is again closed.

D. All disconnected piping and process equipment will be bagged and tagged before the work is completed.

XIV. WINTER REPAIR OF PROCESS STEAM TRACERS

A. The following procedure will apply to steam tracer maintenance only, pipe size 1/2 inch and smaller.

1. The maintenance craftsmen will attach a **"DANGER-DO NOT OPERATE"** tag to protect against inadvertent operation of the steam supply valve. The steam valve may be left partially open to prevent freezing. This shall be documented on the danger tag.

2. The following protective equipment will be worn when working on or near the open tracer joint.

a. Hard Hat
b. Safety Glasses
c. Face Shield
d. Lined Denim Coat
e. Boots
r. Protective Gloves
g. PVC Pants.

XV. MINIMUM REQUIRED STEEL SLIP IN BLANK THICKNESSES

During the shutdown isolation process, isolation blinds will be used to best engineering practice as outlined in ANSI b. 31.3 Standard, ASME Section 8, and Occidental Chemical Corporation Engineering Specification, Piping 61920. These standards are located in the Engineering Department.

XVI. EXCEPTIONS TO SR 30 REQUIREMENTS

Connecting and disconnecting tank cars and trailers, sampling and routing purging are not normally considered line/equipment breaking within the meaning of this SR. Department procedures will spell out the required protective equipment and procedures necessary to perform these tasks.

XVII. SAFETY LOCKS AND TAGS

A. All process equipment and pipelines to be worked on during the line break must be secured with a lock and a **"Danger-Do Not Operate"** tag attached to the lock. The printed name of the installer and date of installation must be on the tag.

B. Refer to **SR 13, Lock, Tag And Try**, for further details of the proper lockout procedures when: the flow of air, chemicals, flammable liquids, gases, steam, or water, through an unblanked pipeline would present a hazardous condition.

ATTACHMENT I

LINE OR EQUIPMENT BREAKING CHECKLIST

CHECKLIST MUST BE COMPLETED BEFORE ANY PROCESS LINE OR EQUIPMENT IS OPENED WHICH CONTAINS OR HAS CONTAINED HAZARDOUS MATERIAL.

GOOD THIS DATE ONLY FROM TO

DEPARTMENT LOCATION

WORK TO BE DONE

MATERIAL POSSIBLY IN LINE

☐ Class I Name of Material

☐ Class II Name of Material

OPERATING PRESSURE

OPERATING TEMPERATURE

Complete this section before checklist is signed. Check the precaution to be taken before line opening starts, entering checks under "Maintenance" or "Operating"or both, depending on who is responsible for carrying out the specific precaution.

MAINTENANCE				OPERATIONS	
YES ☐	NO ☐	Process decontaminated.		YES ☐	NO ☐
YES ☐	NO ☐	Containment and spill control equipment on site.		YES ☐	NO ☐
YES ☐	NO ☐	All necessary protective equipment determined available and ready for use.		YES ☐	NO ☐
YES ☐	NO ☐	Respiratory protection needed? Is so, state type		YES ☐	NO ☐
YES ☐	NO ☐	If necessary, area barricaded and tagged.		YES ☐	NO ☐
YES ☐	NO ☐	Scaffolding installed or other safe access to equipment provided.		YES ☐	NO ☐
YES ☐	NO ☐	"Hot Work Permit" provided as needed.		YES ☐	NO ☐
YES ☐	NO ☐	Line or equipment drained into a suitable container, marked with a waste code number.		YES ☐	NO ☐
YES ☐	NO ☐	Process fluids removed from equipment or lines broken?		YES ☐	NO ☐
YES ☐	NO ☐	Necessary blanks installed?		YES ☐	NO ☐
YES ☐	NO ☐	Drain valve to be installed?		YES ☐	NO ☐
YES ☐	NO ☐	All lines are properly supported?		YES ☐	NO ☐
YES ☐	NO ☐	Tracer system in operation?		YES ☐	NO ☐
YES ☐	NO ☐	Nitrogen test pressure under 20 psi?		YES ☐	NO ☐
YES ☐	NO ☐	Safety shower located and tested?		YES ☐	NO ☐
YES ☐	NO ☐	Supervision notified of any cast fittings.		YES ☐	NO ☐
YES ☐	NO ☐	Is area clear of unneeded personnel?		YES ☐	NO ☐
YES ☐	NO ☐	Line or equipment has been properly prepared and is safe to break into.		YES ☐	NO ☐

SPECIAL PRECAUTIONS

We certify that the precautions checked and/or written out above have been taken, and will be followed for the duration of the job.

For Maintenance Dept. Signed

For Operating Dept. Signed

Reviewed

LEBC - 6/91

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NIAGARA PLANT HAZARD COMMUNICATION PROGRAM

PURPOSE

The purpose of this written Hazard Communication Program is to define requirements and establish procedures and criteria which will ensure that:

- Each container of hazardous chemicals in the workplace is properly labeled, tagged or otherwise demarcated in accordance with the requirements of 29 CFR 1910.1200 (f).
- Each container of hazardous chemicals leaving the workplace is properly labeled in accordance with the requirements of 29 CFR 1910.1200 (f).
- Material Safety Data Sheets (MSDS) are obtained or developed for each hazardous chemical produced or purchased in accordance with the requirement of 29 CFR 19101200 (d) and (e).
- Personnel are trained in accordance with the requirements of 29 CFR 1910.1200 (h).
- Hazardous chemical lists, which reference appropriate MSDSs, are compiled for the facility.
- Personnel are informed of the hazards of non-routine tasks.
- Contract employees are informed of the hazardous chemicals they may be exposed to while performing work and the recommended measures for preventing exposures to these chemicals.

SCOPE

All chemicals manufactured, used and/or stored at the Niagara plant which may present a potential health, safety and/or environmental hazard are covered under this program. In addition, all personnel potentially exposed to these chemicals will be covered under the training requirements of the program.

DEFINITIONS

CAP	Chemical approval procedure
Hazardous Chemical	A substance or material with HMIS ratings greater than"0" for Health (blue), "1" for flammability (red) and "0" for reactivity (yellow).
Hazardous Chemical List	Inventory of chemicals known to be present within the Niagara plant. The list is located in the Safety Department.
HazCom	Hazard Communication
HMIS Label	A Hazardous Materials Identification System label which is a component of a visual system using colors, numbers, letters of the alphabet, an d symbols to communicate risk information to workers. The numerical ratings for health (blue), flammability (red), and reactivity (yellow) range from "0" which represents a very low degree of hazard potential to "4" which represents a very high degree of hazard potential.
Immediate Use	Hazardous chemical in control and used only by the person who transfers it from a labeled container or equipment and only within the work shift in which it is transferred.

DEFINITIONS (cont)

MSDS	Material Safety Data Sheet which provides written information on the identity, characteristics, and health/safety related information for a specific hazardous chemical.
Qualitative Risk Assessment	A method used to assess the degree of a worker's risk for potential exposure to physical and chemical stressors of a particular hazardous chemical.

I. Written Hazard Communication Program

A site specific written Hazard Communication Program has been developed for the Niagara plant and is located at the Safety Department. The written program which contains the items listed below shall be readily available to personnel at all times:

A. Plant-specific hazardous chemical list (central location at H-15)
B. Information on how to identify chemicals contained in processes and process specific equipment
C. Labeling requirements for both in-plant containers and containers shipped off-site
D. Chemical approval procedure
E. Training requirements.

II. RESPONSIBILITIES

A. Supervisor

1. Ensures mandatory Hazard Communication training required for all personnel potentially exposed to hazardous chemicals is provided.
2. Ensures HazCom information is readily accessible to personnel during each work shift.
3. Ensures supplemental HMIS labels with the appropriate information are affixed to containers where original manufacturer or supplemental labels have become defaced, illegible, or inadequate.
4. Ensures employees label all transfer containers not for immediate use by the individual performing the transfer of the involved chemical.

B. Hazard Communication Administrator (Safety Manager)

1. Identifies potential health and physical hazards of all chemicals that are purchased, used, and/or stored at the facility, as appropriate
2. Ensures that appropriate HazCom training programs are in place.
3. Ensures new hazard information is made available to Area Supervision and/or Contract Coordinator, as appropriate
4. Participates in the chemical approval process by reviewing the MSDS to determine if any potential health or safety hazards would result from use
5. Maintains/updates the HazCom master chemical inventory file at the Safety Department.

II. **RESPONSIBILITIES (cont)**

B. Hazard Communication Administrator (Safety Manager) (cont)

6. Performs qualitative risk assessments as required for new chemicals introduced into the facility and provides appropriate hazard information, for training purposes, to Supervision of area(s) utilizing new chemical agents
7. Assists in auditing the effectiveness of the chemical approval procedure (See Section VIII.) in conjunction with SARA 311/312 inventories

C. Contractor Coordinator (Person overseeing project)

1. Provides, to the contract employer, Hazard Communication information necessary for training contractor employees prior to the initiation of the work project or contract.
2. Informs contractor of and monitors compliance with facility procedures governing procurement, use, storage and labeling of chemicals used by contractor
3. Informs contract employers of their responsibility for initiating the chemical approval procedure for all chemicals they intend to store, use and/or transport on site

D. Receiving/Stores

1. Monitors all chemical agents entering the plant through its facility to assure that unauthorized deliveries are not made.

2. Ensures all chemical containers are appropriately labeled (i.e. with the manufacturer's name and address, identity of the hazardous chemical, and the appropriate hazard warnings) prior to delivery to plant areas.

E. Corporate Environmental-Product Stewardship

1. Evaluates new hazard information, as it becomes available, for those products manufactured at the Niagara plant and revises Material Safety Data Sheets (MSDS) as appropriate.
2. Ensures new or revised hazard information is made available for distribution to customers of Niagara plant products.
3. Ensures new or revised hazard information is made available to the Safety Department as appropriate for distribution to facility's downstream users (employees and contractors).

F. Environmental

1. Participates in the chemical approval process by reviewing the MSDS to determine if any potential environmental hazard would result from use
2. Audits effectiveness of chemical approval procedure in conjunction with SARA 311/312 inventories

G. Shipping/Loading Supervisor and Traffic Controllers

Ensures all shipped products are labeled in accordance with regulatory and OxyChem requirements.

II. **RESPONSIBILITIES (cont)**

H. Process Safety Management Coordinator

Participates in the approval process by reviewing the MSDS to determine if a potential process hazard would result from use

I. Purchasing

Follows criteria outlined in Attachment IV ("Purchasing Decision Logic") to ensure that unauthorized purchases are not made.

J. Employee

1. Labels containers with supplemental HMIS labels when labels are defaced.
2. Labels transfer containers not for immediate use by person making the transfer.

III. **Hazard Determination**

A. Intermediate Streams and Finished Products

1. The determination of the hazards associated with intermediate streams and finished products manufactured by the Niagara plant is the responsibility of the Corporate Environmental Product Stewardship Group. These streams will be evaluated utilizing "Occidental Chemical Company's Hazard Determination Procedure". (Note: the Hazard Determination Procedure is contained within the OxyChem Corporate "Hazard Communication Program Guideline"). MSDSs will be developed for finished products and intermediate streams based upon the hazard determination. Niagara Plant will provide Product Stewardship with any necessary additional information upon request, which may be needed to make the hazard determination.

2. Corporate Product Stewardship is responsible for revising and updating hazard determinations and MSDSs when new and/or significant changes in hazard information becomes available. In addition, Product Stewardship is responsible for ensuring that revised MSDSs are made available to downstream customers and the Niagara plant Safety Department. The Safety Department will ensure that the MSDS(s) is/are readily available to the facility's downstream users (i.e. employees and contractors).

B. Purchased Chemicals

1. The hazards associated with chemicals purchased for use within the facility will be evaluated as part of the chemical approval procedure (See Section VIII.)

2. A "Qualitative Risk Assessment" will be performed, as outlined in the Corporate OxyChem "Exposure Assessment Program", for each new chemical purchased or for each new application in which a chemical is being used. Results of the qualitative risk assessment will be utilized to determine acceptability, usage of the chemical, and required training.

III. **Hazard Determination (cont)**

B. Purchased Chemicals (cont)

3. Corporate Product Stewardship will evaluate the hazards associated with the chemicals and assign a hazard rating utilizing the "Hazardous Material Identification System" (HMIS). The results of the hazard ratings (See Attachment I, MTRB-185) are maintained in the master Hazard Communication MSDS files located at the Safety Department and are available for inspection upon request.

IV. **Chemical Inventory**

A. Hazardous Chemical List

1. An inventory of the chemicals known to be present within the Niagara plant has been established and is included in the written HazCom program at the Safety Department. The Safety Department in conjunction with the plant environmental group maintains the master chemical inventory for the facility.

2. The chemical inventory is a listing of the chemicals organized alphabetically by product name and numerically by MSDS reference number. Chemical inventories are updated as appropriate (i.e. as new chemicals are introduced or discontinued and as new hazard information becomes available). A Chemical Approval Procedure (See Section VIII) has been developed to ensure responsibilities are assigned and procedures are in place to maintain a current hazardous chemical list .

B. Material Safety Data Sheets (MSDSs)

1. Current MSDSs are maintained in a master file at the Safety Department for each chemical listed on the Niagara plant Hazardous Chemical List.

2. The chemical approval procedure (See Section VIII) shall be used to ensure that MSDSs are received, maintained and readily available for all chemicals purchased, used and/or stored at this facility and that an internal evaluation is performed to determine the potential health, safety and environmental hazards of those chemicals.

3. MSDSs shall be provided to employees, contractors, and visitors upon request. On the day shift, requests shall be directed to the Safety Department, while during the off-shift, requests must be directed to the Main Gate.

V. **Labeling Requirements**

A. In-Plant Container Labeling

1. All containers, regardless of size; bags, boxes, barrels, bottles, cans, cylinders, drums, tote tanks, reaction vessels, storage tanks, and the like that contain a hazardous chemical must be properly identified. Pipes and piping systems are not considered to be containers; however, line labeling, tank placarding, operating procedures, and material and energy balance diagrams, as described in Section V, paragraph C of this document, can be utilized to identify chemicals contained within the lines.

V. **Labeling Requirements (cont)**

A. In-Plant Container Labeling (cont)

2. Containers are required to be labeled with a supplemental HMIS label when the manufacturer label is missing or defaced (i.e. not legible).

3. Containers are required to be labeled when chemicals are transferred from labeled containers or from process equipment into portable containers and the individual who made the transfer does not intend to use it immediately. If the container is to be handled or used by an individual other than the person making the transfer or it will be left unattended, the container must be labeled.

4. Supplemental HMIS labels shall include the following information:
   a. Chemical name
   b. Hazard warning ratings for health, flammability, and reactivity

5. Bags, drums, pails, kegs, etc., stored on pallets may be identified with a single label when all the chemicals on the pallet are identical. If the chemicals are of different types, each container shall be labeled separately.

6. Labels can be ordered from Stores as indicated below. Labels for registered bulk storages can be obtained from the Environmental department. Other special labels can be ordered from the industrial hygiene technician.

a.	1-inch by 2-inch	11-46708020
b.	2-inch by 2-inch	11-46708000
c.	4-inch by 4-inch	11-46708010
d.	8-inch by 8-inch	11-46708030
e.	8 3/8-inch by 11-inch	11-46708040

7. The list of HMIS health, flammability, and reactivity (HFR) hazard ratings and chronic health hazard warnings can be found on the MSDS or the appropriate Form MTRB 185 (See Attachment I) Any questions concerning HMIS hazard warning ratings will be addressed by the Safety Department.

8. Contractors and vendors are responsible for ensuring proper labels are affixed to any hazardous chemicals brought into the facility. Contractor coordinators are responsible for contractor compliance with these guidelines.

9. Only hazardous chemical containers are required to be labeled. For non-hazardous chemicals, the name of the substance should be indicated on the container so anyone coming into the work area can identify it as non-hazardous (i.e. detergent and water). As a general rule, chemicals with a rating greater than (HFR) 0,1,0, shall be considered hazardous.

V. **Labeling Requirements (cont)**

B. Labeling of Shipped Containers

1. All products containing potentially hazardous chemicals, manufactured or generated by the Niagara plant, shall have a label affixed to the container that identifies, at a minimum, the following:

   a. Identity of the hazardous chemical
   b. Name and address of the manufacturer
   c. Appropriate hazard warnings (i.e. words, pictures, symbols or combination)

2. The following individuals have responsibility for ensuring all shipped products are appropriately labeled:

   a. Shipping Supervisor
   b. Loading Supervisor
   c. Traffic Controller

C. Identifying Chemical-Containing Process Equipment and Piping

The Niagara plant uses a combination of methods to identify chemicals contained in process equipment. Methods include:

1. Tank placarding
2. HMIS labels on equipment
3. HMIS labels at building entrances
4. Energy and material balance diagrams
5. Line labeling
6. Operating procedures

VI. **Hazards of Non-Routine Tasks**

In order to assure that employees and contractors are informed of the hazards of non-routine tasks, the following permits and procedures have been established:

A. Area Work Clearance

A work order system is in place to ensure employees and contractors obtain the appropriate clearance prior to performing various types of work activities. The workers will be notified of any special precautions, restrictions or known hazards at the time the work clearance is issued. Work clearance is indicated by the signature on the work order by an individual responsible for the area in which the work is to be performed.

B. Hot Work Permit

In addition to the Area Work Clearance, individuals performing any work and/or operation of any equipment that may create a source of ignition, which could cause flammable or combustible materials in the area to ignite, must obtain a Hot Work Permit.

VI. **Hazards of Non-Routine Tasks (cont)**

C. Confined Space Entry Permit

All work in confined spaces require a "Confined Space Entry Permit" prior to anyone entering the space. Special precautions, restrictions and information are evaluated and identified on the written permit to ensure potential hazards associated with work within a confined space are addressed and employee exposure to these hazards are kept to a minimum. The permit must be posted at the job site.

D. Line Breaking

Line Breaking procedures have been developed to ensure that tasks involving the maintenance and clearing of specific hazardous chemical containing lines and equipment are planned, prepared and performed in a manner that minimizes the potential for chemical exposure. A line breaking checklist must be completed by both the owner of the equipment and the individuals performing the work prior to initiating the first break to ensure the proper precautions have been taken. Additionally, contractors are not permitted to perform first breaks due to unfamiliarity with the processes.

E. Operating Procedures

Operating procedures have been developed, by operations, to address non-routine tasks such as shutdown and turn-around activities. They are designed to communicate the proper procedures to ensure safe start-up and shutdown of equipment/processes. In addition, operating procedures are utilized to communicate the proper procedures for addressing the hazards and precautions for other types of non-routine operations and maintenance tasks, where appropriate.

VII. **Requirements of Contractors**

A. Contract employers working at the Niagara plant are responsible for complying with OSHA's Hazard Communication Standard and the requirements outlined in this written Hazard Communication Program.

B. Contract employees will be informed of the location and content of the Niagara plant written HazCom program during contractor orientation and/or during the pre-job safety review.

C. It will be the responsibility of the contract employer to ensure its employees are trained in the proper use of information contained in the written HazCom program and the proper response to hazards associated with materials encountered in the facility.

D. The Contractor Coordinator will provide the contract employer with the Hazard Communication information necessary for training its employees, prior to the initiation of the work project or contract.

VIII. **Chemical Approval Procedure**

A. All industrial chemicals, additives, mixtures, raw materials, catalysts, or reagents used, stored or brought on-site which may present a potential health, safety and/or environmental hazard must be approved through the steps outlined in this section.

NOTE: All chemical agents described above and governed by this procedure shall be ordered via purchase order or material release - not via field order. This includes all *initial* orders to be used for process testing purposes.

B. Requisitioner of Purchased Chemicals

1. Follow criteria outlined in Attachment II ("Initiator Decision Logic") for determining the appropriateness of initiating the Chemical Approval Process

2. When the chemical approval process is required the requisitioner:
   a. Initiates and completes Section I of the chemical approval form (Attachment III)
   b. Obtains a MSDS from chemical manufacturer of chemical being requisitioned and attaches it to chemical approval form.
   c. Initiates routing of chemical approval form (See Section VIII, paragraph E.)

C. Approval Process

1. Each individual having the authority to initiate the requisition or purchase (i.e. Initiator) of a chemical agent is responsible for following criteria outlined in Attachment II ("Initiator Decision Logic") to determine appropriateness of initiating the chemical approval process.

2. Criteria outlined in Attachment IV ("Chemical Approval Process Flow Diagram") should be followed for all chemicals requiring approval for use.

3. Each individual having the authority to purchase (i.e. Buyer) chemical agents is responsible for following the criteria outlined in Attachment V ("Purchasing Decision Logic") to ensure unauthorized purchases are not made and that hazard information can be obtained and transmitted to affected employees and contractors.

D. Screening and Review

1. As a part of the evaluation process, the HazCom Administrator shall ensure an exposure assessment is performed to determine if additional HazCom training will need to be conducted prior to introducing the material into the work place.

2. Once approved for purchase, a completed MTRB 195 (Attachment VI) form will be forwarded, with a copy of the MSDS, to Corporate Environmental. As soon as the HMIS Ratings are assigned, they will be added to the HMIS labels in the plant, where appropriate.

VIII. **Chemical Approval Procedure (cont)**

E. Chemical Approval Routing

1. Requisitioner completes the chemical approval form (Attachment III), attaches a MSDS, obtains approval (i.e. signature) of the area supervisor where the material will be used or stored, and forwards it to the Environmental Department.

2. Environmental reviews the information provided, evaluates the potential environmental impact, acquires additional information if deemed appropriate, signs the chemical approval form, and forwards to the Process Safety Management (PSM) Coordinator.

3. Process Safety Management (PSM) Coordinator reviews the information provided, evaluates the potential process safety hazards associated with use, acquires additional information if deemed appropriate, signs the chemical approval form, and forwards to the Safety Department.

4. HazCom Administrator (Safety) reviews the information provided, evaluates the potential health and physical hazards associated with use, acquires additional information if deemed necessary. If the chemical is approved for use, the HazCom Administrator is responsible for:

   a. Notifying the initiator
   b. Performing qualitative risk assessment
   c. Forwarding Hazard Communication information to the affected groups.
   d. Forwarding inventory information to Environmental for SARA 311/312

F. Emergency Approval

In the event that a chemical must be purchased in a situation where all of the approvals cannot be secured, the Plant Manager, or his designee, may give emergency approval. Notification shall be made to the individual(s) on the chemical approval routing list (who did not have an opportunity to review the information) as soon as practical there after, usually the next normal working day. All employee information and training requirements must be met prior to introduction of the material into the workplace.

G. Periodic-Re-Evaluation

Whenever new information becomes available through an MSDS update, it will be evaluated and the current MSDS will either be replaced or the approval revoked.

IX. **Training**

A. Employees shall receive training which effectively communicates the details of Niagara plant's Hazard Communication Program. The Safety Department shall be responsible for conducting this training in conjunction with employee orientation training. Refresher training will be conducted per the "OxyChem Safety Process Systems Quality Guidelines" requirements or whenever a change is made in the written program. Training will include the following as a minimum requirement:

IX. **Training (cont)**

A. Training will include following as a minimum requirement: (cont)

1. Employees shall receive training which effectively communicates the elements of OSHA's Hazard Communication Standard. 29 CFR 1910.1200 and the rights of employees.

2. Location and use of the written Hazard Communication program

3. Information contained on the chemical inventory list, labels, MSDSs and how this information can be used to determine potential hazards in the work area, and appropriate personal protective equipment for protection against those hazards

4. Methods used to determine which chemicals are contained in process equipment.

5. Explanation of the employee's labeling responsibilities.

6. Explanation of hazard warning terminology used at the facility

B. Employees shall receive information and training on hazardous chemicals in their workplace at the time of their initial assignment, when the hazard changes, whenever a new hazard is introduced into the work area, and after a new work assignment (transfer) if the new assignment involves different chemical hazards.

C. Area Supervision shall be responsible for ensuring that employees are aware of the potential health and safety hazards of chemicals specific to the employee's work area.

D. The Safety Department is responsible for supplying the list of hazardous chemicals, current MSDS(s), and any additional information which shall be utilized for this training. In addition, the Safety Department is responsible for supplying information whenever a new hazard is introduced into the work area or whenever the hazards of a chemical already in use change.

E. Auditing

The Niagara plant Hazard Communication Program will be audited per the Safety Process System Quality Guideline requirements.

dmm/hazcom.wp6

COMPANY : 09 BASIC CHEMICALS GROUP
DIVISION : 01 E&PP DIVISION
FACILITY : 0273 NIAGARA PLANT - NY

ATTACHMENT I

MATERIAL M 7608 **BENZOTRICHLORIDE**

MSDS DATE : 2-17-94 LABEL ID : 079M7608 MANUFACTURER : OCCIDENTAL CHEMICAL CORPORATION

PURE/MIX : PURE TRADE CODE : N MATERIAL USE : P I D

HMIS : 3• HEALTH
1 FLAMMABILITY
2 REACTIVITY

•• OSHA HAZ MATERIAL ••

HAZARD CODE : I D R
S.R.O.P : NO
OXIDIZER : NO

CROSS REFERENCE

2108 BASIC CHEMICALS GROUP

SYNONYMS

ALPHA, ALPHA, ALPHA-TRICHLOROTOLUENE
BTC
PHENYL CHLOROFORM
TRICHLOROMETHYLBENZENE

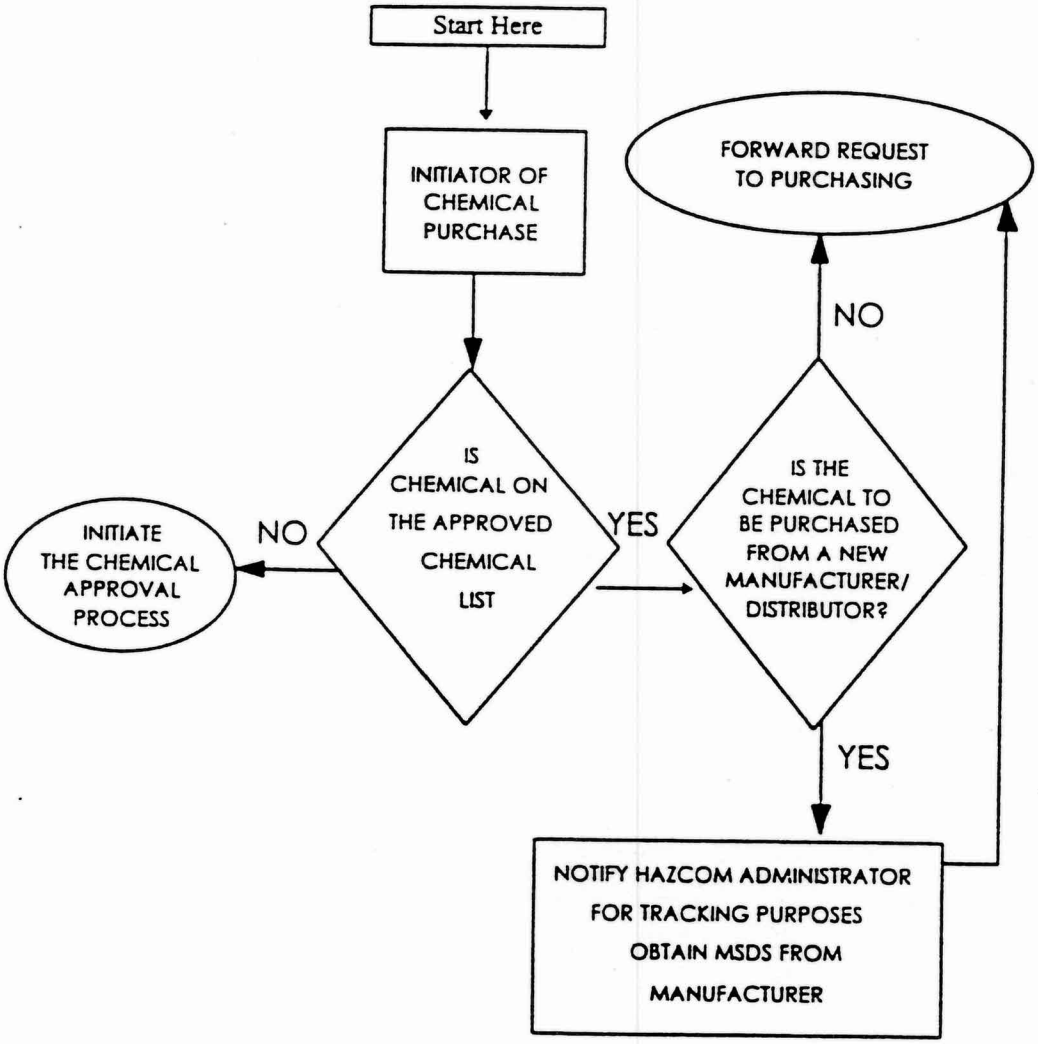
COMPOSITION

CAS#	DESCRIPTION	MSDS	UNIT	LOW	HIGH	LIST
C 100447	Benzene, (chloromethyl)-	YES	C	0.0000	0.0100	1 2 3 9 11 13 18 21 22 24 27 37
C 2136892	Benzene, 1-chloro-2-(trichloromethyl)-	NO	C	0.0000	0.0100	36 40 46 47
C 5216251	Benzene, 1-chloro-4-(trichloromethyl)-	NO	C	0.0000	0.0200	11 25 29 36 40 46 47
C 88664	Benzene, 1-chloro-2-(dichloromethyl)-	NO	C	0.0000	0.0100	36 40 47
C 98077	Benzene, (trichloromethyl)-	YES	C	0.0000	99.9000	1 2 3 7 9 11 15 18 21 24 27 36
C 98873	Benzene, (dichloromethyl)-	YES	C	0.0000	0.0200	1 2 3 7 9 13 16 18 24 27 36 46
C 98884	Benzoyl chloride	NO	C	0.0000	0.0100	2 3 13 18 21 22 24 27 40 47 90

LIST LEGEND

1 SARA EXTR HAZ SUB, SECTION 302
2 SARA TOXIC CHEM, SECTION 313
3 HAS A CERCLA REPORTABLE QTY
7 NTP "ANTPTD HUMAN CARCINOGENS"
9 IARC GROUP 2A OR 2B CARCINOGEN
11 CA PROP 65 - CARCINOGEN
13 PA ENVIROMENTAL HAZ SUBSTANCE
15 PA SPECIAL & ENV HAZ SUBSTANCE
16 NJ WORKPLACE HAZ SUBSTANCE LST
18 NY HAZARDOUS SUBSTANCES
21 NJ SPECIAL HEALTH HAZ SUB
22 CANADIAN DOMESTIC SUB LIST
24 NJ DISCHARGE OF HAZ SUBSTANCES
25 TSCA SEC12 EXPORT NOTIFICATION
27 TSCA SECTION 8(A) PAIR
29 TSCA SECTION 4 FINAL
36 CANADIAN NDSL
37 N.C. AIR TOXICS LIST

ATTACHMENT II - Initiator Decision Logic



PLANT

ATTACHMENT III
REQUEST FOR CHEMICAL APPROVAL FORM

All hazardous substances must be approved prior to initial entry into the plant. Forward this completed form to the appropriate departments for approval. Attach a legible and current MSDS. Approval must be obtained before our purchasing department will place an order.

SECTION I - TO BE COMPLETED BY THE REQUISITIONER:

1. Product name:_____

2. Manufacturer name:_____

3. Common name used in Plant:_____

4. Who will use or contact the substance?_____

5. Location where will the substance be used?_____

   stored?_____

6. How is the substance being used?_____
   (e.g. support, raw material, lab chemical, warehouse stocked, etc.)

7. Are there any tasks associated with the material use which could generate potential exposure situations?_____

8. How is the substance being stored?_____
   (e.g. can, glass bottle, plastic jug, bag, box, above ground tank, plastic drum, etc.)

9. Storage condition - Pressure: Ambient _____> Ambient_____< Ambient_____

   - Temperature: Ambient_____> Ambient_____< Ambient_____Cryogenic_____

10. Physical state: Gas_____Liquid_____Solid_____Powder_____Solution_____Molten_____
    _____

11. Maximum storage quantity on site (**POUNDS**): _____Average:_____

12. Sudden release of pressure: Yes__No_____

13. This substance is: New to Plant_____Approved for other unit/area_____
    _____(List)

    _____

    For research/trial only____For one time approval____Replaces_____

REQUEST FOR CHEMICAL APPROVAL FORM (page 2)

Requisitioner (Print and sign name) _____ / ____ / _____
Date Phone Number

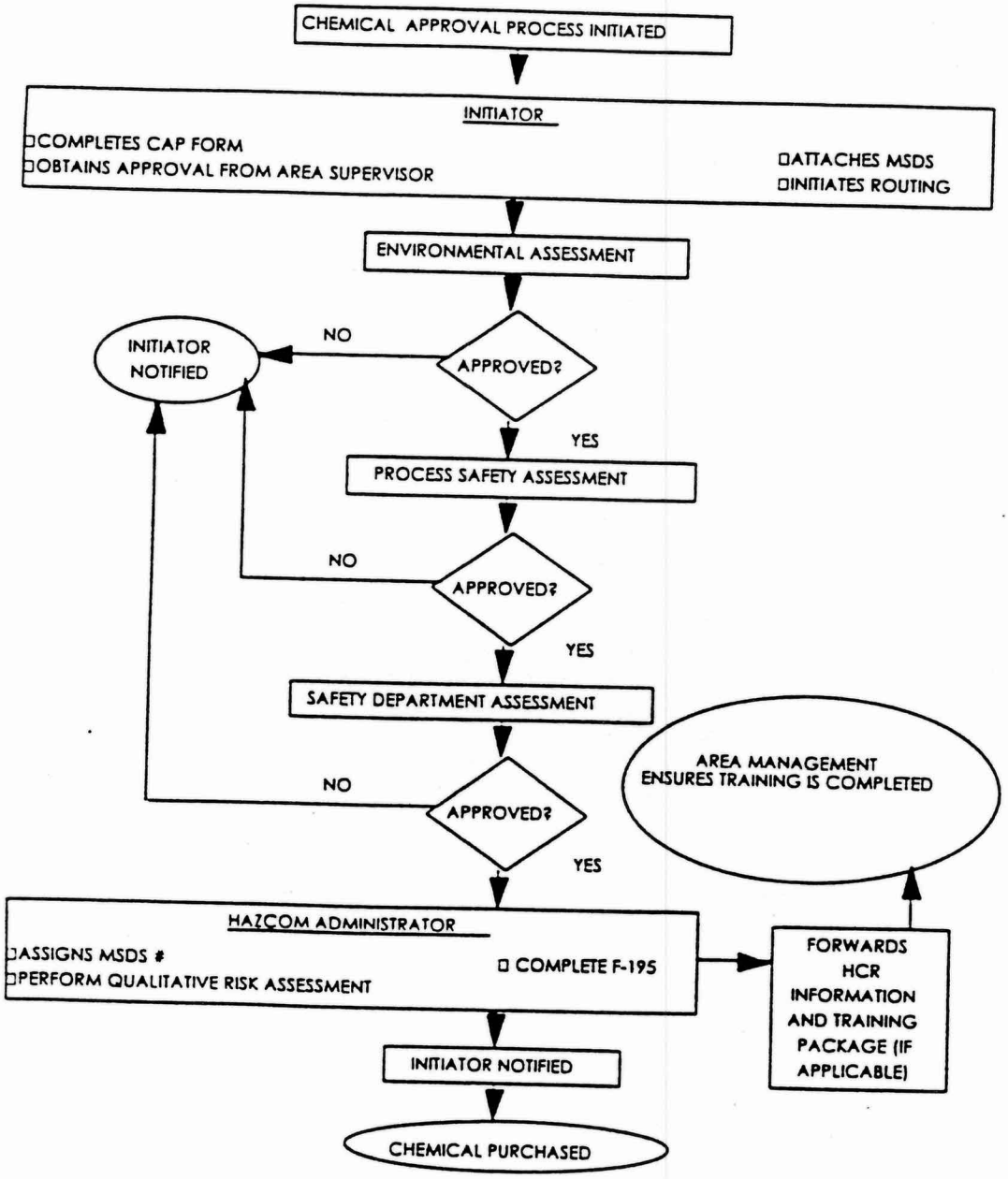
Area Supervisor (Print and sign name) _____ / ____ / _____
Date Phone Number

SECTION II - To be signed by approvers or alternates within 5 working days.

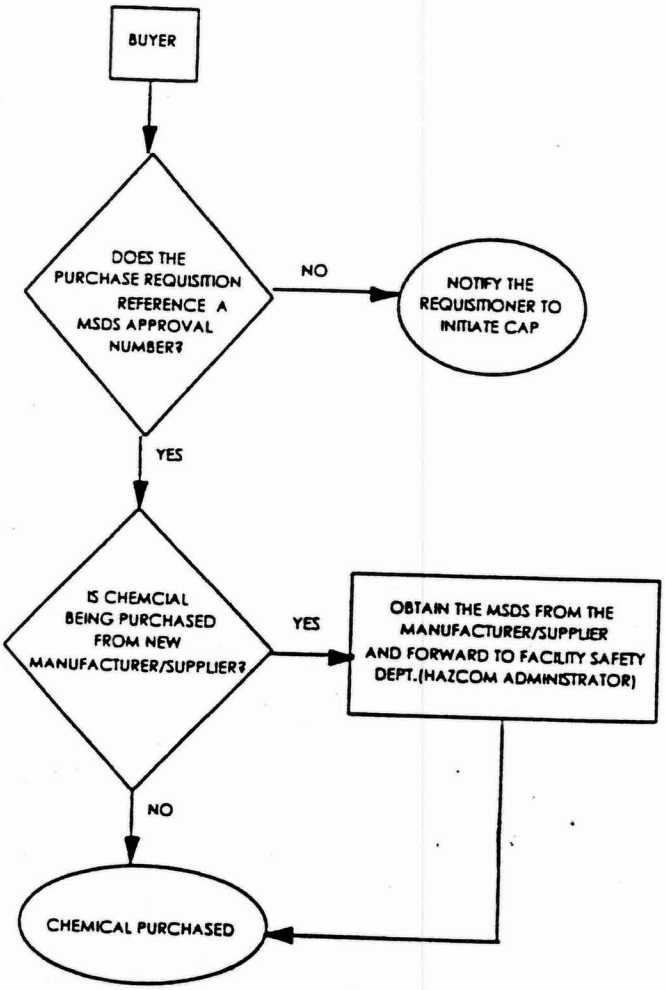
Approver/Dept.	Signature	Date	Comments
PSM Coord			
Environmental			
Safety Dept			

_____ / ____ / _____
Processed by Date MSDS Approval Number

ATTACHMENT IV - Chemical Approval Process



ATTACHMENT V - Purchasing Decision Logic



14:56:46

OCCIDEN. MICAL CORP
NEW AL FORM

)1-88)
RB195

COMPANY : 09 BASIC CHEMICALS GROUP
DIVISION : 01 E&PP DIVISION
FACILITY : 0273 NIAGARA PLANT - NY

ATTACHMENT VI

(1) PRODUCT / TRADE NAME : _____

(2) MANUFACTURER (VENDOR) NAME : _____

(3) MSDS DATE : __ / __ / __

(4) TRADE CODES : I (Import) E (Export) B (Both) N (Neither)

(5) CROSS REFERENCE : _____

NOTE:
SEE BACK FOR DETAIL INSTRUCTIONS FOR COMPLETING FORM.

(6) WORKPLACE AREA	SECT	STRCT	ZONE	OTH	(7) MAT USE	(8) EFFECTIVE DATE	(9) STORAGE TYPE	(10) STORAGE PRES / TEMP	(11) MAX DAILY AMOUNT	(12) AVG DAILY AMOUNT	(13) NO OF DAYS ON SITE
___	____	____	____	__	__	__ / __ / __	__	1 2 3 4 5 6 7	_____	_____	__
___	____	____	____	__	__	__ / __ / __	__	1 2 3 4 5 6 7	_____	_____	__
___	____	____	____	__	__	__ / __ / __	__	1 2 3 4 5 6 7	_____	_____	__
___	____	____	____	__	__	__ / __ / __	__	1 2 3 4 5 6 7	_____	_____	__

(14) PHYSICAL STATE: GAS __ LIQUID __ SOLID __ POWDER __ SOLUTION __ MOLTEN __

(15) SUDDEN RELEASE OF PRESSURE __

U.S. GAIA PLANT

* THIS FORM SUPERSEDES ALL PREVIOUS NEW MATERIAL FORMS
IF MORE THAN FOUR LOCATIONS ARE NEEDED PER MATERIAL - USE ADDITIONAL FORMS
SEE EAP 100-1 FOR ADDITIONAL INFORMATION ON THIS FORM.

RB143

DETAIL INSTRUCTIONS FOR COMPLETING NEW MATERIAL FORM (MTRB195)(03-15-89)

FORM WILL BE COMPLETED ON ALL NEW MATERIALS RECEIVED. (NEW MATERIAL - A MATERIAL PURCHASED FROM MANUFACTURER FOR THE FIRST TIME - NOT IN CURRENT INVENTORY ON VENDOR LISTING) (SEE EAP 100-1).

MTRB185 FORM WILL BE USED TO REPORT CHANGE INFORMATION ON CURRENT MATERIAL.

(1) PRODUCT/TRADE NAME - Enter name on MSDS

(2) MANUFACTURER NAME - Enter manufacturer (vendor) name. DO NOT use supplier name.

(3) MSDS DATE - Enter date (Use MM-DD-YY) Format).

(4) TRADE CODES - Circle appropriate code(s) on form.

I - IMPORT	B - BOTH
E - EXPORT	N - NEITHER

(5) CROSS REFERENCE NUMBER - Enter number used to identify material within facility.

(6) WORKPLACE CODES - Utilizing current location listing (LCIQ0020) - identify ALL location(s) that material is located within facility.

(7) MATERIAL USE - Enter only one code per location. (If material has more than one use per location, make separate entries).

B - Pass-Thru-Product	S - Support Material
D - Residue	T - Toll Product
I - Intermediate	W - Warehoused Material
P - Product	X - Re-Brand
R - Raw Material	

(8) EFFECTIVE DATE - Enter the date material placed in inventory. Date will be used to determine "Days on Site" (14).

(9) STORAGE TYPES - Enter one code per workplace location.

A - Above Ground Tank	I - Fiber Drum	O - Tote Bin
B - Below Ground Tank	J - Bag	P - Tank Wagon
C - Tank Inside Building	K - Box	Q - Rail Car
D - Steel Drum	L - Cylinder	R - Other
E - Plastic/Non Metal Drum	M - Glass Bottles /Jugs	*S - Below Ground Tank - Fiberglass
F - Can	N - Plastic Bottles /Jugs	*T - Plastic Drums
G - Carboy		
H - Silo		

* New Jersey Reporting Only

(10) STORAGE CONDITIONS - Enter One pressure and One temperature Storage Condition for each location.

PRESSURE	TEMPERATURE
1 Ambient Pressure	4 Ambient Temperature
2 Greater Than Ambient Pressure	5 Greater Than Ambient Temperature
3 Less Than Ambient Pressure	6 Less Than Ambient Temperature (But not cryogenic)
	7 Cryogenic Temperature

(11) Enter (estimate) the MAXIMUM DAILY AMOUNT (pounds) on hand during reporting quarter.

(12) Enter (estimate) the AVERAGE DAILY AMOUNT (pounds) for reporting period.

(13) Enter (estimate) the NUMBER OF DAYS ON-SITE for reporting period.

(14) PHYSICAL STATES - Check physical state(s) for each location. Solids need to be further identified, if applicable, to indicate if they are handled in Powdered (particle size of less than 100 microns), Solution, or Molten form

(15) Check Sudden Release of Pressure (S.R.O.P.) if applicable.

DISTRIBUTION - Forward completed copy of MSDS to Corporate (EMS) - Niagara Falls, NY.

SEE EAP 100-1 FOR ADDITIONAL INFORMATION ON THIS FORM.

B150